

Searching for Extrasolar Planets with SIM

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Abstract

The Space Interferometry Mission (SIM) will be the first space-based long base-line Michelson interferometer designed for precision **astrometry**. SIM will extend the reach of astrometry to cover the entire Galaxy, and will address a wide range of problems in Galactic structure and stellar astrophysics. It will also serve as a technology precursor for future astrophysics missions using interferometers. SIM will be a powerful tool for discovering planets around nearby stars, through detection of the reflex motion, and it will directly measure masses for the planets detected this way. It will have a single-measurement precision of 1 microarcsecond in a frame defined by nearby reference stars, enabling SIM to search for planets with masses as small as a few earth masses around the nearest star. More massive planets will be detectable to much larger distances.

interferometry
planet detection